

25. (New) The method of Claim 23, wherein said sponge is a transgenic sponge that expresses at least one heterologous gene that encodes a protein that effects concentration of the metal or mineral in the sponge.

26. (New) The method of Claim 23, wherein said bacteria is selected from the group consisting of *Bacillus cereus*, *Citrobacter intermedius*, *Acetobacter methanolicus*, *Thermothrix thiopara*, *Phormidium*, *Oscillatoria*, *Mastigocladus*, *Thiobacillus ferrooxidans*, *Thiobacillus*, *Thiopyxidans*, *Bacillus lichenformis*, *Bacillus BKPM 4368*, *Pedomicrobium* and *Bacillus subtilis*.

27. (New) A method of recovering metals and minerals from sea water, comprising: contacting a *Cenarchaeum symbiosum* with said sea water; and recovering concentrated metal or mineral from said *Cenarchaeum symbiosum*, wherein said *Cenarchaeum symbiosum* comprises marine sponge and associated archaea.

28. (New) A method of recovering gold from sea water, comprising: contacting a sponge harboring *Pedomicrobium* with said sea water; and recovering concentrated gold from said sponge harboring *Pedomicrobium*.

29. (New) A method of recovering metals and minerals from sea water, comprising: contacting a sponge harboring *Cyanobacteria* with said sea water; and recovering concentrated metal or mineral from said sponge harboring *Cyanobacteria*.

30. (New) A method of recovering metals and minerals from sea water, comprising: contacting a sponge with said sea water; and recovering concentrated metal or mineral from said sponge, wherein symbiotic bacteria indigenous to said sponge are modified to include bacteria capable

of accumulating said metal or mineral.

*Shah* 31. (New) A method of recovering metals and minerals from sea water, comprising:  
cultivating sponges in a sponge bed, wherein said sponges harbor bacteria capable of  
accumulating said metal or mineral;

permitting said metal or mineral to accumulate; and  
recovering concentrated metal or mineral from said sponges.

32. (New) A method of recovering metals and minerals from sea water, comprising:  
contacting a transgenic sponge with sea water to concentrate the metal or mineral in  
the bacteria, wherein the sponge expresses at least one heterologous gene that encodes a  
protein that effects concentration of the metal or mineral in the sponge and wherein the  
sponge harbors bacteria capable of concentrating said metal or mineral; and  
recovering the concentrated metal or mineral from the sponge.--

#### REMARKS

Claims 1-22 are canceled. Claims 23-32 are added. Applicants respectfully request  
that the Examiner consider the foregoing Preliminary Amendment upon initial consideration  
on the merits of the present application. Applicants submit that the Preliminary Amendment